Thermal Adaptation of Westslope Cutthroat Trout

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Populations of westslope cutthroat trout (*Oncorhynchus clarkii lewisi*), a State species of special concern, have declined throughout their native range. Genetic introgressions, mainly from rainbow trout (*O. mykiss*), but also from Yellowstone cutthroat trout (*O. c. bouvieri*), and habitat loss are believed to be the leading causes of this decline. Populations that remain are often small and isolated, thereby increasing their risk of inbreeding depression and extinction. Translocation projects may offer a solution by infusing new genetic material into populations and potentially increasing their probability of persistence. However, local adaptations must

be considered when selecting a donor population. We investigated thermal adaptations of four wild populations of westslope cutthroat trout from the Missouri River drainage and one hatchery population from the Washoe Park Trout Hatchery, Anaconda, Montana. Two wild populations were deemed to be from warm streams and two from cold streams. Fish were spawned streamside and at the hatchery. The resulting embryos were placed in experimental systems at 8, 10, and 14 °C. Survival was monitored throughout incubation. Post-embryonic growth was measured 90 days after hatching. Relationships between population performance and natal stream thermal characteristics were examined for adaptive differences.